

# Wetlands Northwest LLC

## **CRITICAL AREA REPORT**

of  
the

**Werner and Brown Properties  
1100 6<sup>th</sup> Avenue SE  
Issaquah, WA 98027**

**Tax Parcel Numbers: 342406-9287 and 342406-9279**

**SW Section 34, Township 24N, Range 06E,**

**Prepared for:**

**Bill Werner  
1075 6<sup>th</sup> Ave SE  
Issaquah, WA 98027**

**and**

**David Brown  
11204 148<sup>th</sup> Ave SE Renton,  
WA 98059**

**Dated:  
June 6, 2018**

**Prepared by:**  
**Robert King, Professional  
Wetland Scientist**



\_\_\_\_\_  
Robert  
King



5218 Ivanhoe PL NE Seattle,  
WA 98105  
206-456-5474  
www.wetlandsnw.com

## Table of Contents

<b>1.0 INTRODUCTION AND SITE DESCRIPTION .....</b>	<b>1</b>
<b>2.0 PROPOSED USE.....</b>	<b>1</b>
<b>3.0 METHODOLOGY .....</b>	<b>1</b>
<b>4.0 ON-SITE INVENTORIES.....</b>	<b>3</b>
<b>5.0 RESULTS .....</b>	<b>4</b>
5.1 WETLANDS.....	4
5.2 STREAMS.....	4
<b>6.0 CONCLUSION .....</b>	<b>5</b>
<b>7.0 LIMITATIONS AND USE OF THIS REPORT .....</b>	<b>5</b>
<b>8.0 REFERENCES.....</b>	<b>9</b>

## Figures

<b>1.0</b>	<b>Vicinity</b>	<b>Map</b>	<b>.....2</b>
<b>2.0</b>	<b>NRCS Soils</b>	<b>Map.....</b>	<b>6</b>
<b>3.0</b>	<b>Wetland and Streams</b>	<b>Inventories.....</b>	<b>7</b>
<b>4.0</b>	<b>Wetland 2012 Aerial.....</b>	<b>Streamand Buffer Map, USGS</b>	<b>8</b>

## Attachments

Wetland Data Forms  
Wetland Rating Forms





## 1.0 Introduction and Site Description

The address for the site is the 1100 Block 6<sup>th</sup> Avenue SE, Issaquah (see Figure 1 Vicinity Map, page 2). Ingress and egress is from 6<sup>th</sup> Avenue SE along the property's eastern boundary. The two parcels combined is rectangular-shaped and covers an approximate area of 0.5 acres in the SF-S Zone. The property is vacant and undeveloped, adjoining and nearby properties have single-family homes and a church on the other side of 6<sup>th</sup> Avenue SE. The property slopes less than 5 percent conveying drainage to the western property boundary.

## 2.0 Proposed Use

This critical area report will be used to determine the encumbrances of the on-site critical areas for a future building permit. *Wetlands Northwest LLC* visited the property on April 13, 2018 for data collection. Temperatures were in the mid-40s with overcast skies and rain.

## 3.0 Methodology

The routine methodology described in the Army Corps of Engineers Wetlands Delineation Manual (1987) was utilized during site investigations to make a determination regarding wetlands, as required by King County. *Wetlands Northwest LLC* also evaluated the site using the U.S. Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region produced in 2010 (hereinafter referred to as "the Corps Regional Supplement"). The Corps Regional Supplement provides technical guidance and procedures for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the Clean Water Act.

According to the federal methodology described above, identification of wetlands is based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soils, and presence or indications of hydrology. Using the subject manuals, the site characteristics for making a wetland determination include the following:

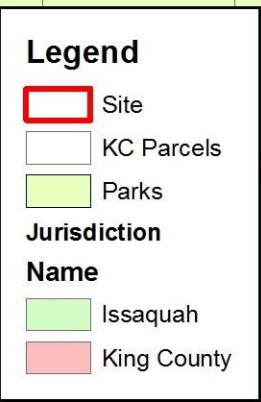
- 1.) Examination of the site for hydrophytic vegetation (species present/percent cover);
- 2.) Examination for the presence of hydric soils in areas where hydrophytic vegetation is present; and
- 3.) Examination to determine if adequate hydrology exists for sufficient durations during the early part of the growing season in the same locations as the previous two steps.

Except where noted in the manuals, the approach requires positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology for a determination that an area is a wetland.

Wetlands are rated using the Washington State Wetland Rating System for Western Washington 2006 revised update. *Wetlands Northwest LLC* also reviewed the King County Wetland Inventory GIS data, the Washington State Department of Natural Resources (DNR) GIS data, the National Wetlands Inventory (NWI) GIS data, the Natural Resources Conservation Service (NRCS) soils data and aerial data obtained by the United States Geological Survey (USGS).

Orange flagging was placed along the wetland boundary labeled A-1 through A-7. Orange flagging was also used for Data Points labeled as DP-1 through DP-9. Both Wetland and Data Points are sketched in Figures 2 and 5 are not survey accurate.

1 inch equals 0.25 miles



#### 4.0 On-site Inventories

According to the NRCS King County soils survey, the property is mapped Everett gravelly sandy loam, 0 to 5 percent slopes and nearby Briscot and Oridia silt loams (see Figure 2 NRCS Soils Map, page 4). During site investigation the Oridia profile was confirmed in upland soils (see DP-2 through DP9) and the Norma profile in saturated soils (DP-1). The Everett, Briscot, Oridia and Norma soil profiles are described as follows:

The Everett series is made up of “somewhat excessively” drained soils that are underlain by very gravelly sand at a depth of 18 to 36 inches. These soils formed in very gravelly glacial outwash deposits, under conifers. They are on terraces and terrace fronts and are gently undulating and moderately steep. In a representative profile, the surface layer and subsoil are 0 to 1 1/2 inches, black (10YR 2/1) sandy loam, 1 1/2 to 17 inches, dark-brown (7.5YR 3/4) gravelly sandy loam, yellowish brown (10YR 5/4), 17 to 32 inches, brown (10YR 4/3) very gravelly sandy loam, pale brown (10YR 6/3) dry, 32 to 60 inches, black and dark grayish-brown (10YR 2/1 and 4/2) very gravelly coarse sand.

The Briscot series is made up of somewhat poorly drained soils. These soils formed in alluvium, under conifers and grass in river valleys. Slopes are less than 2 percent. In a representative profile, the surface layer is dark grayish-brown (10YR 4/2) silt loam about 9 inches thick. The subsoil is mottled grayish-brown (10YR 4/2) and dark-gray (10YR 4/1), stratified fine sandy loam, silt loam, and fine sand to a depth of 60 inches or more.

The Oridia series is made up of somewhat poorly drained soils that formed in alluvium in river valleys. Slopes are 0 to 2 percent. In a representative profile, the surface layer is dark grayish-brown (10YR 4/2) silt loam about 9 inches thick. The subsoil is grayish-brown (10YR 5/2), dark grayish-brown (10YR 4/2), and gray (2.5Y 5/1 – 6/1) silt loam and silty clay loam that extends to a depth of 60 inches or more.

The Norma series is made up of “poorly drained” soils that formed in alluvium, under sedges, grass, conifers, and hardwoods. These soils are in basins on the glaciated uplands and in areas along the stream bottoms. Slopes are 0 to 2 percent. In a representative profile, the surface layer is black sandy loam about 10 inches thick. The subsoil is dark grayish-brown and dark-gray sandy loam and extends to a depth of 60 inches or more. The A horizon ranges from black (10YR 2/1) to very dark brown (10YR 2/2) and is as much as 15 percent gravel. The B horizon commonly is sandy loam that in places is stratified with silt loam and loamy sand. It is as much as 35 percent gravel in some places. The B horizon is mottled gray (10 YR 5/1 – 6/1), dark gray (10 YR 4/1), and dark grayish brown (10 YR 4/2).

According to the King County and DNR inventories, there no wetland or streams inventoried within 225 feet of the property’s boundary (see Figure 3, page 5).

## 5.0 Results

### 5.1 Wetlands

One wetland (Wetland A) was delineated along the northwest area of tax parcel 3424069287 (see Figure 4, page 8). Wetland A is categorized as a depressional wetland and is present in a topographic depression along the LIDAR generated 130-foot contour. It has Palustrine scrub/shrub vegetation (PSS) with some traces of herbaceous vegetation. The herbaceous vegetation does not cover 10 percent of the wetland. The outlet of Wetland A is a ditched stream bordering the western side of the Wetland A.

Wetland A is rated as Category III with an overall score of 19 points (see attached rating) that includes 5 habitat points. Category III wetlands with habitat scores between 5 to 6 require a 75-foot buffer per the Issaquah Municipal Code (IMC) Section 18.10.640 (see Figure 4, page 8).

### 5.2 Streams

A ditch traverses the site along the boundary of both properties eventually discharging into the Lewis Lane Tributary situated approximately 400 feet downstream to the northwest. The Lewis Lane Tributary discharges into Issaquah Creek approximately 0.4 miles downstream. The ditch traversing the site meets the criteria of a watercourse as defined in the Washington Administration Code (WAC) Section 220-110-020(105) which states:

"Watercourse" and "river or stream" means any portion of a channel, bed, bank, or bottom waterward of the ordinary high water line of waters of the state, including areas in which fish may spawn, reside, or pass, and tributary waters with defined bed or banks, which influence the quality of fish habitat downstream. This includes watercourses which flow on an intermittent basis or which fluctuate in level during the year and applies to the entire bed of such watercourse whether or not the water is at peak level. This definition does not include irrigation ditches, canals, storm water run-off devices, or other entirely artificial watercourses, except where they exist in a natural watercourse that has been altered by humans.

The ditched stream meets the definition of Class 3 in IMC Chapter 18.10.780 which states "Class 3 streams means those streams that are intermittent or ephemeral during years of normal rainfall and areas not used by salmonids." Class 3 stream require a 50-foot buffer per IMC Section 18.10.75 (see Figure 4, page 8).

In addition there are ditches that border the west and east boundaries of both tax parcels and as ditches do not meet the criteria of WAC 220-110-020(105) as they were likely nonexistent prior to the area being developed. The installation of the ditch along 6<sup>th</sup> Avenue SE was to convey stormwater during storm events. The installation of the ditch along the western boundary of both properties was likely to lower the water table on the developed properties (1104 and 1106 Lewis Lane SE) to the west. The installation of both ditches also has the effect of lowering the water table of the on-site properties resulting in a smaller wetland area.

According to the Assessor's office the neighboring property across the street at 1100 6<sup>th</sup> Avenue was constructed in 1969 prior to the adoption of the State's stormwater management regulations.



During the site visit it was observed stormdrains and culverts conveying runoff into the ditched stream that traverse the on-site property. It is estimated that approximately to 12.5 acres of impervious unmanaged stormwater flows directly into the on-site ditched Class 3 stream. The additional energy likely contributes to erosion and higher water tables downstream, particularly onsite due to observed standing water and ditch degradation.

## **6.0 Conclusion**

There is a Category III wetland with a 75-foot buffer in addition to a Class 3 stream with a 50-foot buffer. Tax parcel 342406-9287 is totally encumbered with critical areas. Tax Parcel 342406-9279 has approximately 7,000 square feet that is not encumbered by critical areas.

## **7.0 Limitations and Use of this Report**

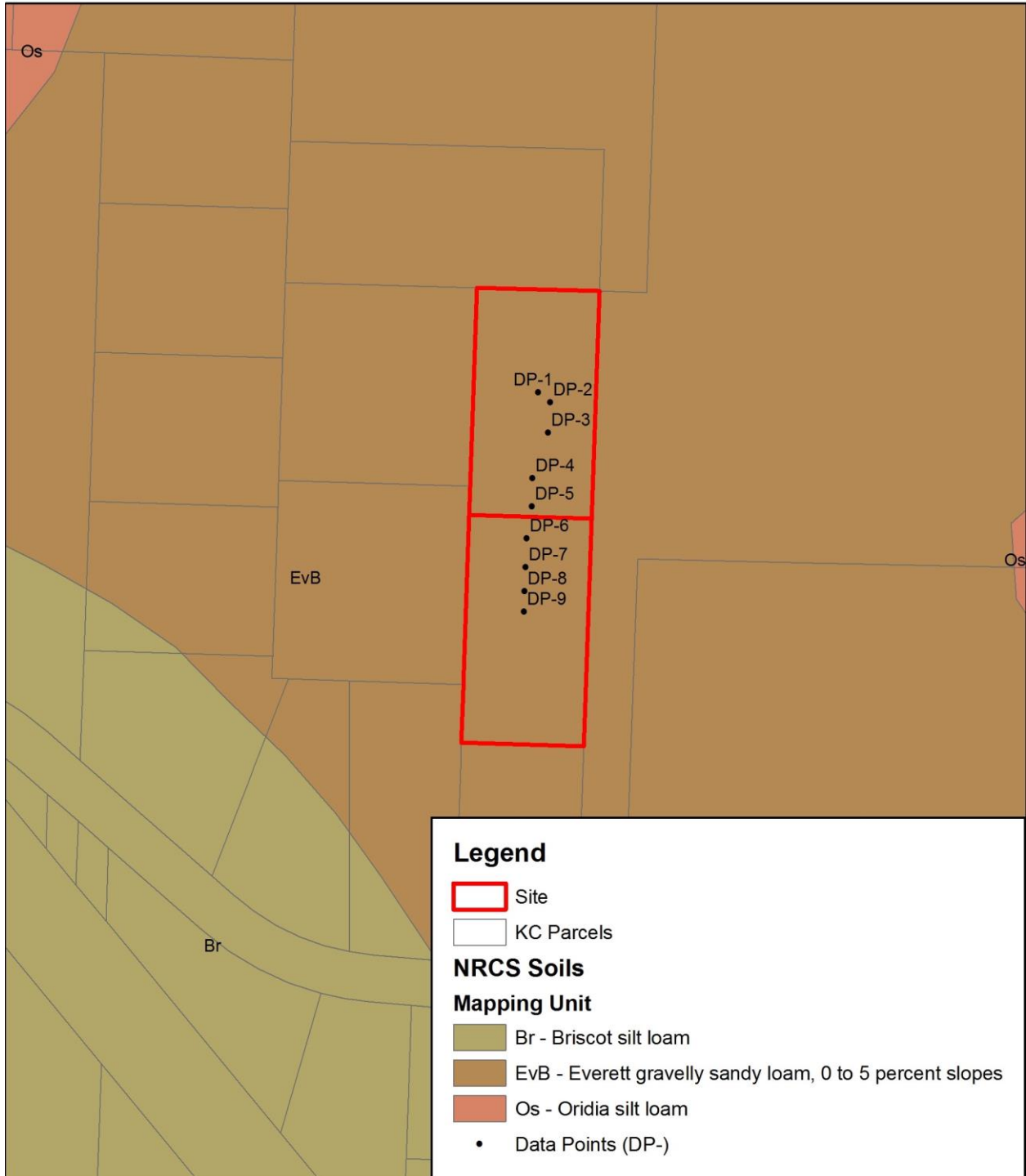
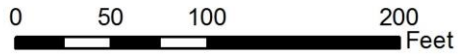
This report is supplied to Bill Werner and David Brown as a means of determining the critical area encumbrances for future development. *Wetlands Northwest LLC* upheld professional industry standards when completing this review. The information included in this report constitutes a professional opinion and does not guarantee approval by any federal, state, and/or local permitting agencies.

The laws applicable to Critical Areas are subject to varying interpretations. The work for this report has conformed to the standard of care employed by professional ecologists in the Puget Sound region. No other representation or warranty, expressed or implied, is made concerning the work or this report. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions. If hidden or concealed conditions arise, the information contained in this report may change based upon those conditions.

# Figure 2 - NRCS Soils Map



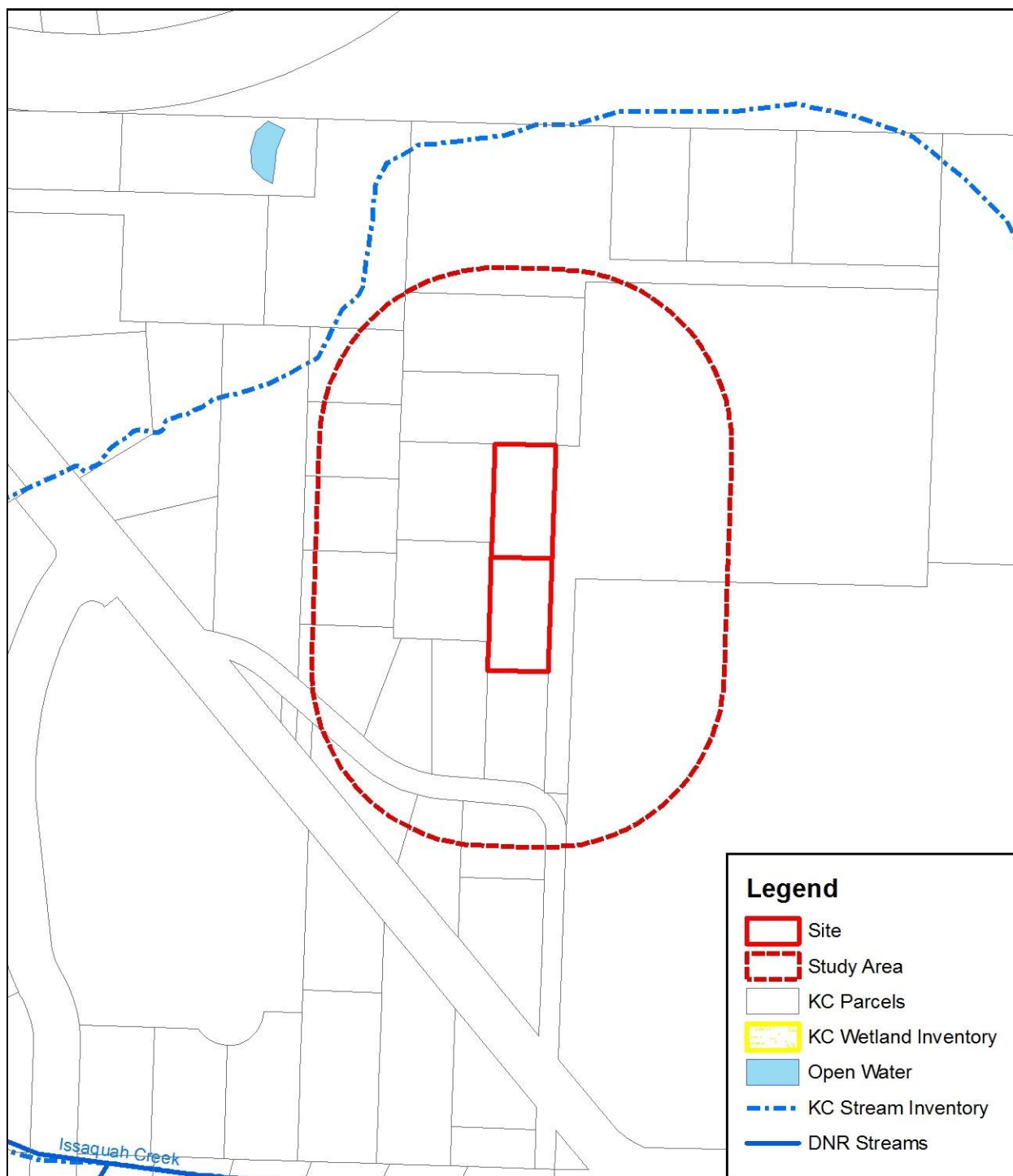
1 inch equals 100 feet



# Figure 3 - Wetland and Stream Inventory Map

1 inch equals 200 feet

0 100 200 400 Feet



# Figure 4 - Wetland Stream and Buffer

1 inch equals 50 feet  
0 25 50 100 Feet





## 8.0 References

Cowardin, et al, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S.D.I. Fish and Wildlife Service. FWS/OBS-79/31. December 1979.

Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

Hruby, T. (2014). Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.

Issaquah Municipal Code Chapter 18.10. Cityu of Issaquah, <http://www.codepublishing.com/WA/Issaquah/> Current as of May 28, 2018.  
National Wetland Plant List 2014. U.S. Army Corps of Engineers

Snyder et al. 1979 King County Soils Survey. United States Department of Agriculture, National Resource Conservation Service.

U.S. Army Corps of Engineers (2010). "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)," [ERDC/EL TR-10-3](#), U.S. Army Engineer Research and Development Center, Vicksburg, MS.

## **ATTACHMENTS**

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Brown and Werner City/County: Issaquah/King Sampling Date: 04/13/18  
 Applicant/Owner: Brown and Werner State: WA Sampling Point: DP-1  
 Investigator(s): R.King Section, Township, Range: SW 34 T24N R 06E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): concave Slope (%): 0-5  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Norma sandy loam NWI classification: N/A  
☒ ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants

Are climatic / hydrologic conditions on the site typical for this time of year?				Yes	No	(If no, explain in Remarks.)
<u>Tree Stratum</u> (Plot size: _____ )	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>		<b>Dominance Test Worksheet:</b>	
1. _____	_____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)	
2. _____	_____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)	
3. _____	_____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
4. _____	_____					
50% = _____, 20% = _____		= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)					<b>Prevalence Index worksheet:</b>	
1. <u>Salix lucida</u>	<u>75</u>	<u>yes</u>	<u>FACW</u>		<u>Total % Cover of:</u> <u>Multiply by:</u> OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
2. _____	_____					
3. _____	_____					
4. _____	_____					
5. _____	_____					
50% = _____, 20% = _____		= Total Cover				
<u>Herb Stratum</u> (Plot size: _____)					<b>Hydrophytic Vegetation Indicators:</b>	
1. _____	_____	_____			<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2. _____	_____	_____				
3. _____	_____	_____				
4. _____	_____	_____				
5. _____	_____	_____				
6. _____	_____	_____				
7. _____	_____	_____				
8. _____	_____	_____				
9. _____	_____	_____				
10. _____	_____	_____				

11. _____ 50% = _____, 20% = _____ <u>Woody Vine Stratum</u> (Plot size: _____) _____ _____ _____, 20% = _____ % Bare Ground in Herb Stratum _____	1. _____ 2. _____ 50% = _____ _____ _____ _____, 20% = _____ _____	_____ _____ _____ = Total Cover _____ _____ _____ = Total Cover	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic</b>  <b>Vegetation</b> Yes    No <input checked="" type="checkbox"/> <input type="checkbox"/>  <b>Present?</b>
Remarks:			

Project Site: Brown and Werner

### SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix		Redox Features				Texture	Remarks		
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>				
0-12	10YR 2/2	100	_____	_____	_____	_____	_____	silt loam	_____	
12-18+	10YR 4/1	80	10YR 5/8	20	_____	_____	_____	silt loam	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
								<sup>1</sup> <sup>2</sup> Type: C= Concentration, D=Depletion, RM=Reduced		
Matrix, CS=Covered or Coated Sand Grains.			Location: PL=Pore Lining, M=Matrix							
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>										
<input type="checkbox"/>			<input type="checkbox"/> (A1) Histosol (A1)							
<input type="checkbox"/>			<input type="checkbox"/> Matrix Deposition (A2)							
<input type="checkbox"/>			<input type="checkbox"/> Shallow Dark Surface (A3)							
<input type="checkbox"/>			<input type="checkbox"/> in Redox Sulfide (A4)							
<input checked="" type="checkbox"/>			<input type="checkbox"/> Depleted Below Dark Surface (A11) Depleted Matrix (F3)							
<input type="checkbox"/>			<input type="checkbox"/> Thick Dark Surface (A12) Redox Dark Surface (F6)							
<input type="checkbox"/>			<input type="checkbox"/> Sandy Mucky Gleyed Matrix (G4)							
<input type="checkbox"/>			<input type="checkbox"/> Sandy Gleyed Matrix (G4)							
<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>										
			<input type="checkbox"/> Sandy Redox (S5) 2 cm Muck							
			<input type="checkbox"/> Stripped Matrix (S6) Red Parent							
			<input checked="" type="checkbox"/> Gamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) Very							
			<input type="checkbox"/> Loamy Gleyed Matrix (F2) Other (Explain							
			Depleted Dark Surface (F7) Indicators of wetland hydrology must be present, Redox Depressions (F8) unless							
<b>Restrictive Layer (if present):</b>										
Type: _____										
Depth (inches): _____										
<b>Hydric Soils Present?</b>							Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Remarks:										



## HYDROLOGY

### Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or Crust (B4)  
☐ Iron Deposits (B5)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Sparsely Vegetated Concave Surface (B8)

- ☐ Water-Stained Leaves (B9)  
**(except MLRA 1, 2, 4A, and 4B)**  
☐ Salt Crust (B11)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Stunted or Stressed Plants (D1) **(LRR A)**  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9)  
**(MLRA 1, 2, 4A, and 4B)**  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) **(LRR A)**  
☐ Frost-Heave Hummocks (D7)

### Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 0  
 Water Table Present? Yes ☒ No ☐ Depth (inches): 0  
 Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Brown and Werner City/County: Issaquah/King Sampling Date: 04/13/18  
 Applicant/Owner: Brown and Werner State: WA Sampling Point: DP-2 Through DP-9  
 Investigator(s): R.King Section, Township, Range: SW 34 T24N R 06E  
 Landform (hillslope, terrace, etc.):        Local relief (concave, convex, none): concave Slope (%): 0-5  
 Subregion (LRR): A Lat:        Long:        Datum:         
 Soil Map Unit Name: Norma sandy loam NWI classification: N/A

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

### VEGETATION – Use scientific names of plants

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	

50% = _____, 20% = _____ Sapling/Shrub Stratum (Plot size: _____)	_____ = Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
1. <u>Salix lucida</u>	<u>75</u>	<u>yes</u> <u>FACW</u>																
2. _____	_____																	
3. _____	_____																	
4. _____	_____																	
5. _____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																
Herb Stratum (Plot size: _____)																		
1. _____	_____	_____																
2. _____	_____	_____																
3. _____	_____	_____																
4. _____	_____	_____																
5. _____	_____	_____																
6. _____	_____	_____																
7. _____	_____	_____																
8. _____	_____	_____																
9. _____	_____	_____																
10. _____	_____	_____																
11. _____	_____	_____																
50% = _____, 20% = _____	_____	= Total Cover																
Woody Vine Stratum (Plot size: _____)																		
1. <u>Rubus Armeniacus</u>	<u>20</u>	<u>yes</u> <u>FACU</u>																
2. _____	_____	_____																
50% = _____, 20% = _____	_____	= Total Cover																
% Bare Ground in Herb Stratum _____																		
Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 60%;">Total % Cover of:</td> <td style="width: 40%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>			Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																	
OBL species _____	x1 = _____																	
FACW species _____	x2 = _____																	
FAC species _____	x3 = _____																	
FACU species _____	x4 = _____																	
UPL species _____	x5 = _____																	
Column Totals: _____ (A)	_____ (B)																	
Prevalence Index = B/A = _____																		
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																		
Hydrophytic Vegetation      Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/> Present?																		
Remarks:																		

Project Site: Brown and Werner

## SOIL

Sampling Point: DP-2 Through DP-9

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-14</u>	<u>10YR 2/2</u>	<u>100</u>	_____	_____	_____	_____	<u>silt loam</u>	_____
<u>14-18+</u>	<u>10YR 4/1</u>	<u>80</u>	<u>10YR 5/8</u>	<u>20</u>	_____	_____	<u>silt loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced <sup>2</sup> Matrix, CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix								

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> (A1) Stosol (A1) <input type="checkbox"/> Matrix Dep (F5) <input type="checkbox"/> Shallow Dark Surface (F1) (A3) <input type="checkbox"/> in Redox Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) Redox Dark Surface (F6) <input type="checkbox"/> Shallow Mucky Material (F6) <input type="checkbox"/> Sandy Gleyed Matrix (G4)	<input type="checkbox"/> Sandy Redox (S5) 2 cm Muck <input type="checkbox"/> Stripped Matrix (S6) Red Parent <input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b> Very <input type="checkbox"/> Loamy Gleyed Matrix (F2) Other (Explain  Depleted Dark Surface (F7) Indicators of wetland hydrology must be present, Redox Depressions (F8) unless	
<b>Restrictive Layer (if present):</b>  Type: _____ Depth (inches): _____		<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:			

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1, 2, 4A, and 4B) (MLRA 1, 2, 4A, and 4B)</b> <input type="checkbox"/> Salt Crust (B11) Drainage Patterns (B10) <input type="checkbox"/> Aquatic Invertebrates (B13) Dry Season Water Table (C2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) Saturated Aerial Imagery (C3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) Shallow Aquitard (D3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) Frost Heave <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> Raised Ant Mounds (D6) <b>(LRR A)</b> <input type="checkbox"/> Other (Explain in Remarks) Frost-Heave Hummocks (D7)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Field Observations:</b> Surface Water Present?   Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>N/A</u> Water Table Present?   Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>≥18</u> Saturation Present?   Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>≥18</u> (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			



# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 4/13/18

Trained by Ecology? Yes ☐ No ☒ Rated by R. King Date of training 12/10/14

HGM Class used for rating Depressional ☒

Wetland has multiple HGM classes? Yes ☐ No ☒

**NOTE: Form is not complete with out the figures requested (figures can be combined).**

Source of base aerial photo/map USGS 2012

**OVERALL WETLAND CATEGORY** \_\_\_\_\_ (based on functions ☒ or special characteristics ☐)

## 1. Category of wetland based on FUNCTIONS

\_\_\_\_\_ Category I - Total score = 23 - 27  
 \_\_\_\_\_ Category II - Total score = 20 - 22  
X Category III - Total score = 16 - 19  
 \_\_\_\_\_ Category IV - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>List appropriate rating (H, M, L)</i>				
Site Potential	M	L	L	
Landscape Potential	M	H	M	
Value	H	H	M	<b>Total</b>
<b>Score Based on Ratings</b>	7	7	5	<b>19</b>

**Score for each function based on three ratings**

(order of ratings is not important)

9 = H, H, H  
 8 = H, H, M  
 7 = H, H, L  
 7 = H, M, M  
 6 = H, M, L  
 6 = M, M, M  
 5 = H, L, L  
 5 = M, M, L  
 4 = M, L, L  
 3 = L, L, L

## 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	

None of the above

## Maps and Figures required to answer questions correctly for Western Washington

### Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	A
Hydroperiods	D 1.4, H 1.2	B
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	B
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	C
Map of the contributing basin	D 4.3, D 5.3	D
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	E
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	F
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	G

### Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

### Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to another figure</i> )	S 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	S 2.1, S 5.1	

1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

### HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.

If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☐

NO - go to 2

☐

YES - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐

**NO - Saltwater Tidal Fringe (Estuarine)**

☐

**YES - Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☐

NO - go to 3

☐

YES - The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

☐

The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size; At least 30% of the open water area is deeper than 6.6 ft (2 m).

☐
☐

NO - go to 4

☐

YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

☐

The wetland is on a slope (*slope can be very gradual*),

☐

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks. The water leaves the wetland **without being impounded**.

☐
☐

NO - go to 5

☐

YES - The wetland class is **Slope**

**NOTE:** Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

☐

The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐

The overbank flooding occurs at least once every 2 years.

☒

NO - go to 6

☐

YES - The wetland class is **Riverine**

**NOTE:** The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐

NO - go to 7

☒

**YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☒

NO - go to 8

☐

**YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to

help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:



## **DEPRESSIONAL AND FLATS WETLANDS**

**Water Quality Functions** - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?

D 1.1. Characteristics of surface water outflows from the wetland:

Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	points = 3	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	1
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	5
Wetland has persistent, ungrazed, plants > 1/2 of area	points = 3	
Wetland has persistent, ungrazed plants > 1/10 of area	points = 1	
Wetland has persistent, ungrazed plants < 1/10 of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation: <i>This is the area that is ponded for at least 2 months. See description in manual.</i>		
Area seasonally ponded is > 1/2 total area of wetland	points = 4	2
Area seasonally ponded is > 1/4 total area of wetland	points = 2	
Area seasonally ponded is < 1/4 total area of wetland	points = 0	
Total for D 1	Add the points in the boxes above	<b>8</b>
<b>Rating of Site Potential</b> If score is: <b>12 - 16 = H</b> <b>6 - 11 = M</b> <b>0 - 5 = L</b> <i>Record the rating on the first page</i>		

D 2.0. Does the landscape have the potential to support the water quality function of the site?

D 2.1. Does the wetland unit receive stormwater discharges?    Yes = 1    No = 0    1

D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate	
pollutants?	Yes = 1    No = 0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1    No = 0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3?    0 Source    Yes = 1    No = 0	
Total for D 2	Add the points in the boxes above
<b>Rating of Landscape Potential</b> If score is: <b>3 or 4 = H</b> <b>1 or 2 = M</b> <b>0 = L</b> <i>Record the rating on the first page</i>	

D 3.0. Is the water quality improvement provided by the site valuable to society?

D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1    No = 0	
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1    No = 0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes

Total for D 3

Add the points in the boxes above 2

Rating of Value If score is: 2 - 4 = H 1 = M 0 = L

Record the rating on the first page

**DEPRESSIONAL AND FLATS WETLANDS****Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

Wetland is a depression or flat depression with no surface water leaving it (no outlet)			points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet			points = 2	0
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch			points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing			points = 0	
D 4.2. <u>Depth of storage during wet periods:</u> Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.				
Marks of ponding are 3 ft or more above the surface or bottom of outlet			points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet			points = 5	0
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet			points = 3	
The wetland is a "headwater" wetland			points = 3	
<input type="checkbox"/>	Wetland is flat but has small depressions on the surface that trap water			points = 1
<input type="checkbox"/>	Marks of ponding less than 0.5 ft (6 in)			points = 0
D 4.3. <u>Contribution of the wetland to storage in the watershed:</u> Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.				
The area of the basin is less than 10 times the area of the unit			points = 5	0
<input type="checkbox"/>	The area of the basin is 10 to 100 times the area of the unit			points = 3
	The area of the basin is more than 100 times the area of the unit			points = 0
Entire wetland is in the Flats class			points = 5	
Total for D 4			Add the points in the boxes above	0

Rating of Site Potential If score is: 12 - 16 = H 6 - 11 = M 0 - 5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic function of the site?

D 5.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0 1

D 5.2. Is &gt; 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?

Yes = 1 No = 0	1
----------------	---

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at &gt;1 residence/ac, urban, commercial, agriculture, etc.)?

Yes = 1 No = 0	1
----------------	---

Total for D 5 Add the points in the boxes above 3

Rating of Landscape Potential If score is: 3 = H 1 or 2 = M 0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
<input checked="" type="checkbox"/>	Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2
<input type="checkbox"/>	2 Surface flooding problems are in a sub-basin farther down-gradient.	points = 1
<input type="checkbox"/>	Flooding from groundwater is an issue in the sub-basin.	points = 1

The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why

points = 0

There are no problems with flooding downstream of the wetland.

points = 0

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0

Total for D 6

Add the points in the boxes above **2**

**Rating of Value** If score is: **2 - 4 = H** **1 = M** **0 = L**

Record the rating on the first page

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important

**habitat H 1.0. Does the site have the potential to provide habitat?**

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- |                                     |   |                                  |   |
|-------------------------------------|---|----------------------------------|---|
| <input type="checkbox"/>            | Aquatic bed                                       | 4 structures or more: points = 4 | 0 |
| <input type="checkbox"/>            |   |                                  |   |
| <input checked="" type="checkbox"/> | Emergent  | 3 structures: points = 2         |   |
| <input type="checkbox"/>            | Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1         |   |
| <input type="checkbox"/>            | Forested (areas where trees have > 30% cover)     | 1 structure: points = 0          |   |

*If the unit has a Forested class, check if:*

The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods).

- |                                     |   |                                     |   |
|-------------------------------------|---|-------------------------------------|---|
| <input type="checkbox"/>            | Permanently flooded or inundated                                    | 4 or more types present: points = 3 | 2 |
| <input checked="" type="checkbox"/> | Seasonally flooded or inundated                                     | 3 types present: points = 2         |   |
| <input type="checkbox"/>            | Occasionally flooded or inundated                                   | 2 types present: points = 1         |   |
| <input type="checkbox"/>            | Saturated only  | 1 types present: points = 0         |   |
| <input checked="" type="checkbox"/> | Permanently flowing stream or river in, or adjacent to, the wetland |                                     |   |

Seasonally flowing stream in, or adjacent to, the wetland

**Lake Fringe wetland**

**2 points**

**Freshwater tidal wetland**

**2 points**

H 1.3. Richness of plant species

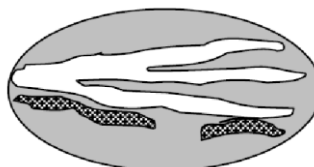
Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

- |                 |                |            |   |
|-----------------|----------------|------------|---|
| If you counted: | > 19 species   | points = 2 | 1 |
|                 | 5 - 19 species | points = 1 |   |
|                 | < 5 species    | points = 0 |   |

H 1.4. Interspersion of habitats

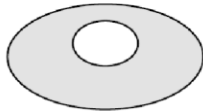
Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



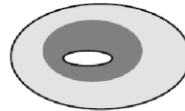
Wetland name or number



**None** = 0 points



**Low** = 1 point



**Moderate** = 2 points

1

<b>H 1.5. Special habitat features:</b> Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i>			
<input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present ( <i>cut shrubs or trees that have not yet weathered where wood is exposed</i> ) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated ( <i>structures for egg-laying by amphibians</i> ) Invasive plants cover less than 25% of the wetland area in every stratum of plants ( <i>see H 1.1 for list of strata</i> )		0	
<b>Total for H 1</b>		<b>Add the points in the boxes above</b>	<b>4</b>
<b>Rating of Site Potential</b> If Score is: <b>15 - 18 = H</b> <b>7 - 14 = M</b> <input checked="" type="checkbox"/> <b>0 - 6 = L</b> <i>Record the rating on the first page</i>			

<b>H 2.0. Does the landscape have the potential to support the habitat function of the site?</b>				
<b>H 2.1 Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</b> <i>Calculate:</i> 0 % undisturbed habitat + ( 0 % moderate & low intensity land uses / 2 ) = 0% _____  If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0			0	
<b>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</b> <i>Calculate:</i> 52 % undisturbed habitat + ( 0 % moderate & low intensity land uses / 2 ) = 52% _____  Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0			3	
<b>H 2.3 Land use intensity in 1 km Polygon: If</b> > 50% of 1 km Polygon is high intensity land use <input checked="" type="checkbox"/> points = (-2) 0 ≤ 50% of 1km Polygon is high intensity points = 0				
<b>Total for H 2</b>			<b>Add the points in the boxes above</b>	<b>3</b>
<b>Rating of Landscape Potential</b> If Score is: <b>4 - 6 = H</b> <b>1 - 3 = M</b> <b>&lt; 1 = L</b> <i>Record the rating on the first page</i>				

<b>H 3.0. Is the habitat provided by the site valuable to society?</b> <b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose <i>only the highest score that applies to the wetland being rated</i>.</b> Site meets ANY of the following criteria: points = 2 <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) It provides <input type="checkbox"/> habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the <input type="checkbox"/> Department of Natural Resources		1
It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan		

Site has 1 or 2 priority habitats (listed on next page) with in 100m

points = 1

Site does not meet any of the criteria above

points = 0

Rating of Value If Score is: 2 = H 1 = M 0 = L

Record the rating on the first page

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.

<http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here:

<http://wdfw.wa.gov/conservation/phs/list/>

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

## **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type

Category

Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.

### **SC 1.0. Estuarine Wetlands**

Does the wetland meet the following criteria for Estuarine wetlands?

The dominant water regime is tidal,

Vegetated, and

With a salinity greater than 0.5 ppt

Yes - Go to **SC 1.1**

No = **Not an estuarine wetland**

- SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?

Yes = **Category**

**I**

No - Go to **SC**

### **1.2**

- SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?

The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)

At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or ungrazed or un-mowed grassland.

The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

Yes = **Category I**

No = **Category II**

### **SC 2.0. Wetlands of High Conservation Value (WHCV)**

- SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?

☐

Yes - Go to **SC 2.2**

No - Go to **SC 2.3**

- SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?

☐

Yes = **Category**

**I**

No = **Not WHCV**

- SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?

<http://www1.dnr.wa.gov/nhp/refdesk/datasetsearch/wnhpwetlands.pdf>

☐

Yes - **Contact WNHP/WDNR and to SC 2.4**

No = **Not WHCV**

SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?

Yes = **Category**

**I**

No = **Not WHCV**

### **SC 3.0. Bogs**

Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs?

Use the key below. **If you answer YES you will still need to rate the wetland based on its functions.**

- SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?

☐

Yes - Go to **SC 3.3**

☐

No - Go to **SC 3.2**

- SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

☐

Yes - Go to **SC 3.3**

☐

No = **Is not a bog**

- SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?

☐

Yes = **Is a Category**

☐

**I bog**

No - Go to **SC**

### **3.4**

**NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.

Wetland name or number

SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?

☐

Yes = **Is a Category**

☐

I bog No = **Is not a**

**bog**

#### SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐

**Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐

**Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐

Yes = **Category I**

☐

No = **Not a forested wetland for this section SC**

#### 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐

The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐

The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐

Yes - Go to **SC 5.1**

☒

No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐

The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐

At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or ungrazed or un-mowed grassland.

☐

The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)

☐

Yes = **Category I**

No = **Category II**

#### SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

☐

In practical terms that means the following geographic areas:

☐

Long Beach Peninsula: Lands west of SR 103

☐

Grayland-Westport: Lands west of SR 105

Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐

Yes - Go to **SC 6.1**

☒

No = **Not an interdunal wetland for rating SC**

6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐

Yes = **Category I**

No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐

Yes = **Category II**

No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐
☐

Yes = **Category III**

No = **Category**

**Category of wetland based on Special Characteristics**

**IV**

N/A

If you answered No for all types, enter "Not Applicable" on Summary Form



# Figure A - Cowarding Plant Classes



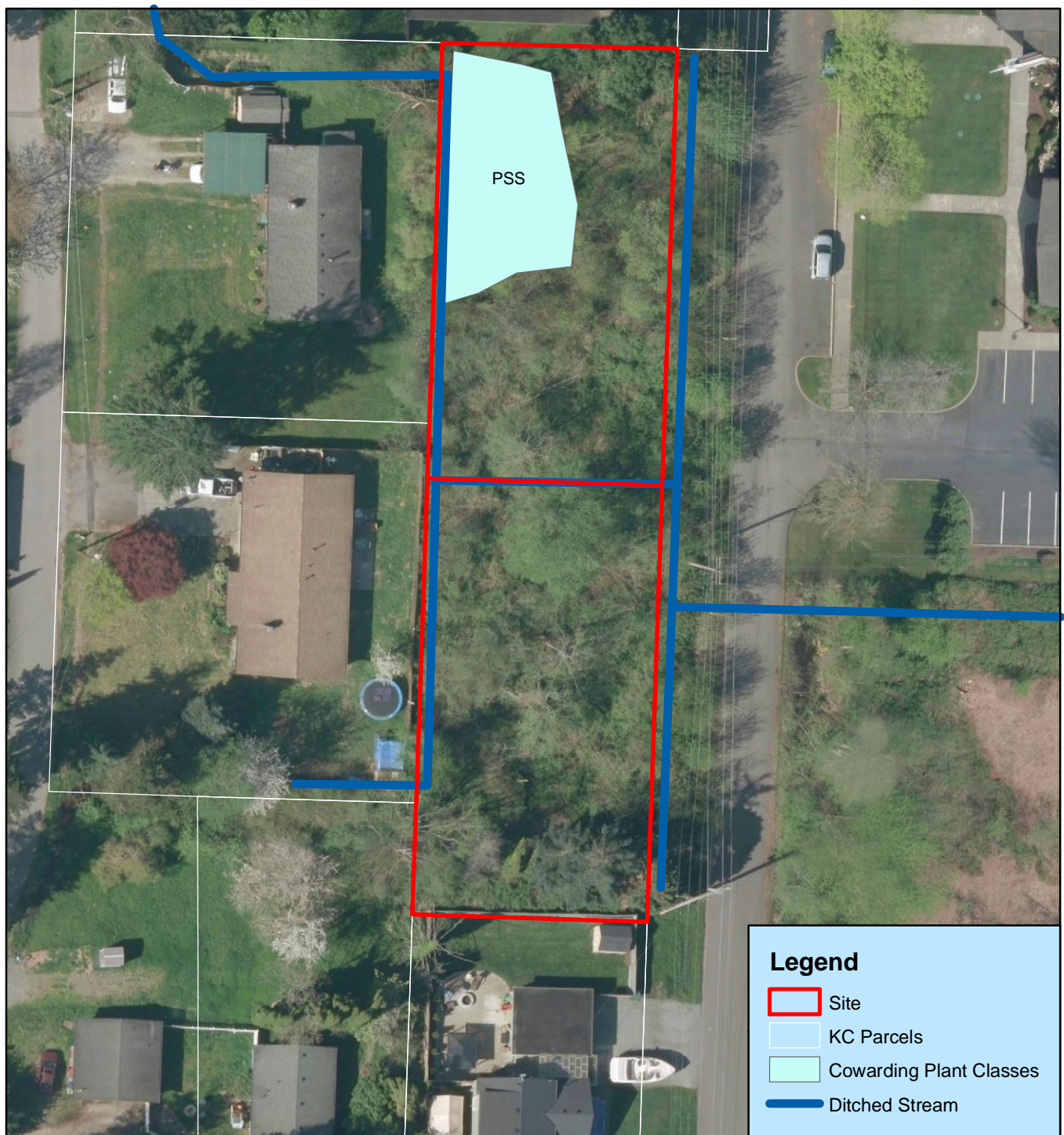
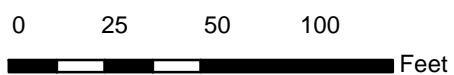


Figure B - Hydroperiods

1 inch equals 50 feet





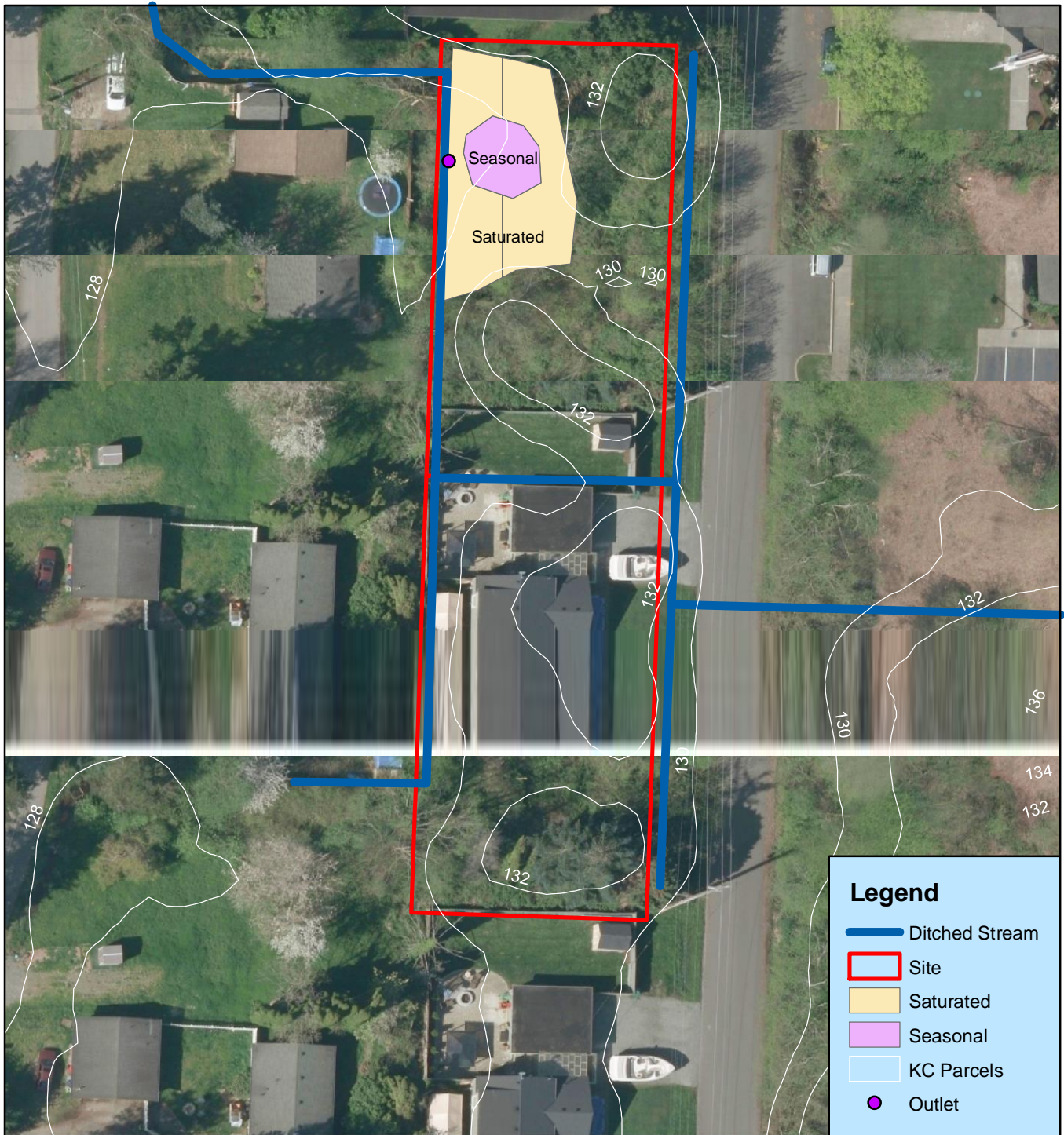
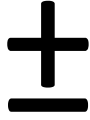


Figure C - 150-Foot Buffer From Wetland

1

inch equals 75 feet



0

37.5

75

150



Feet



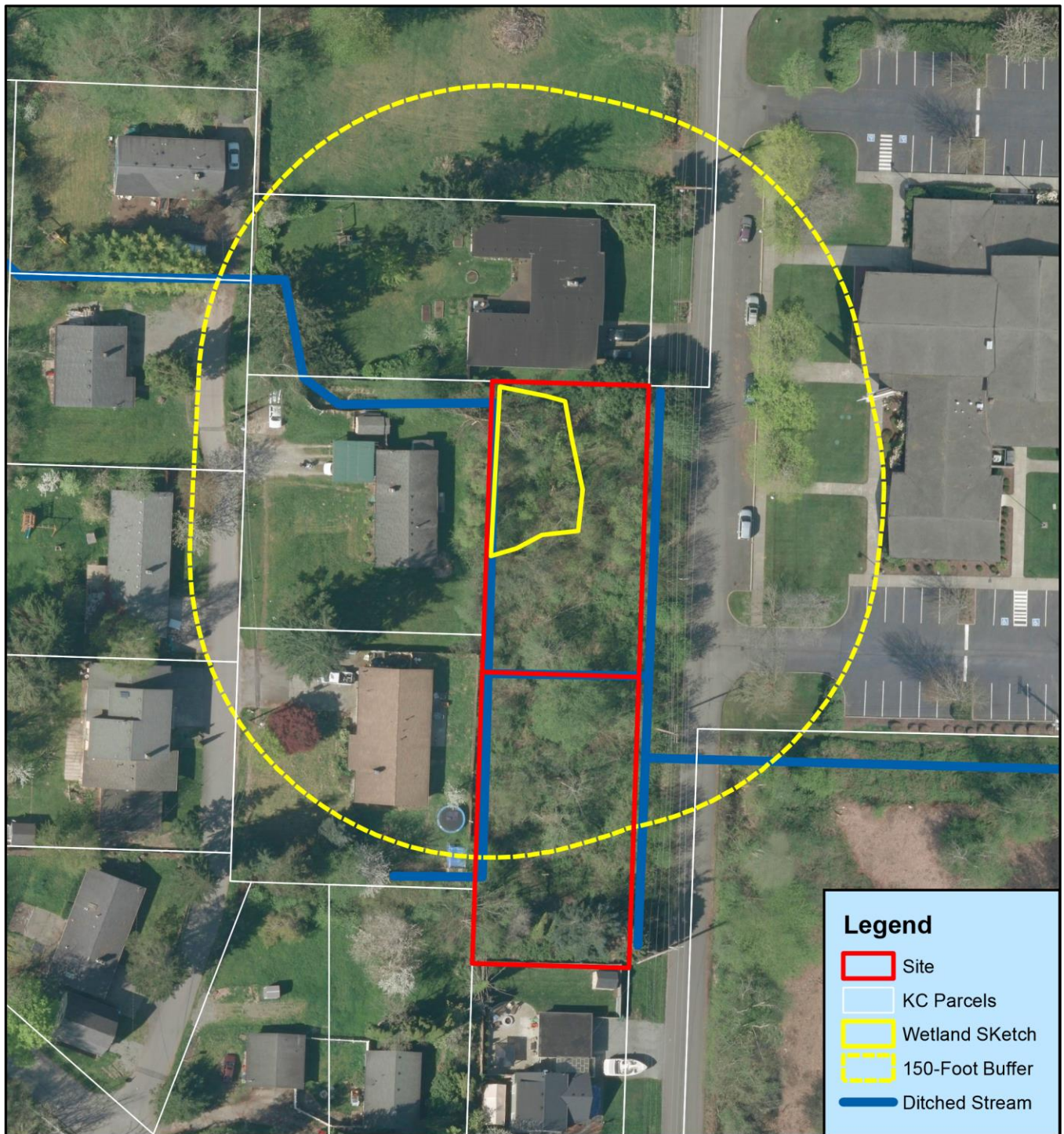
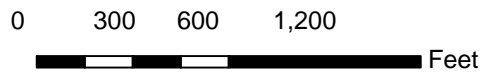
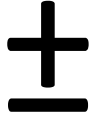


Figure D - Contributing Basin

1 inch equals 600 feet





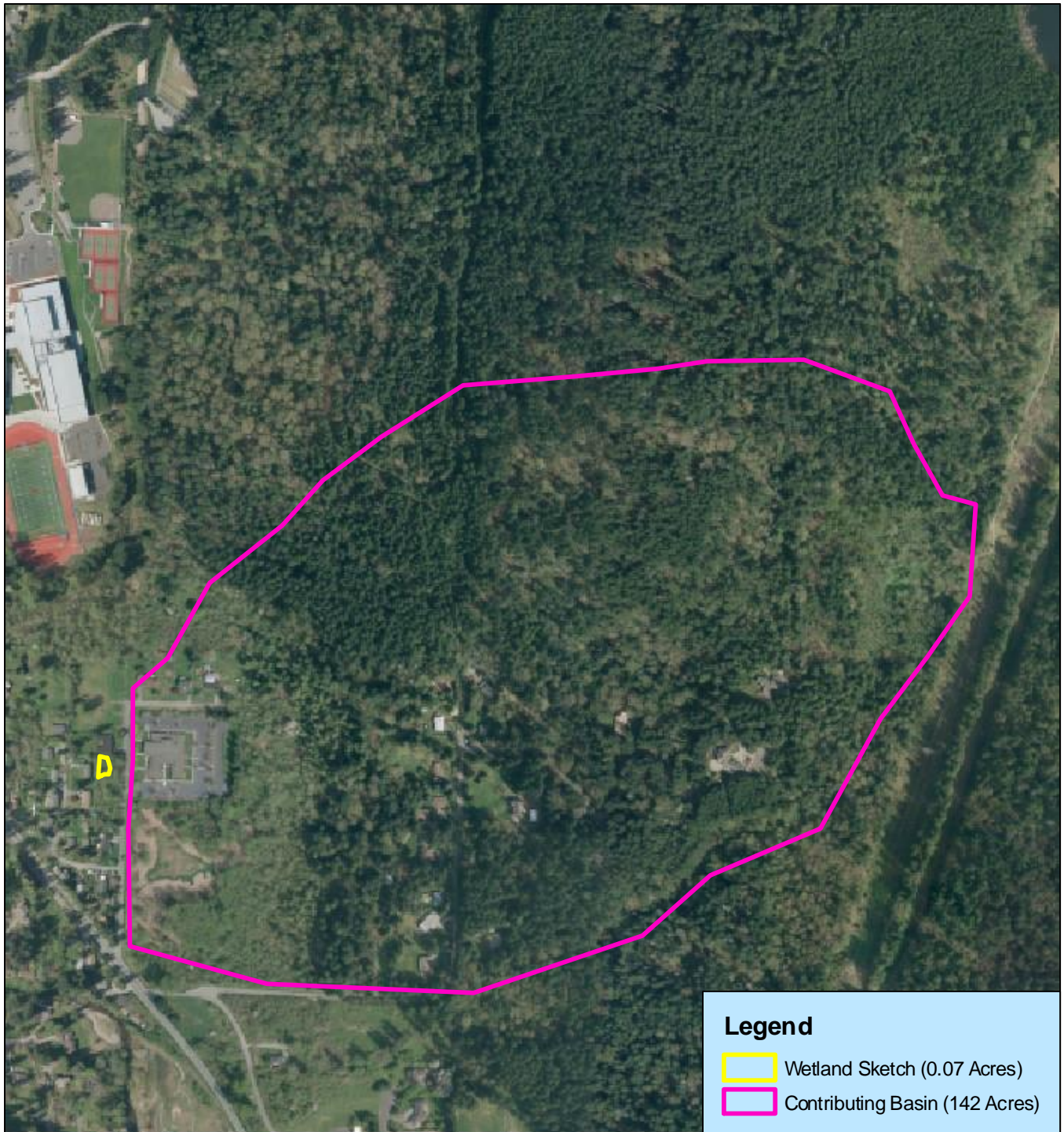
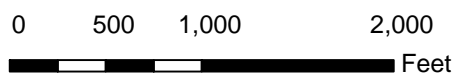
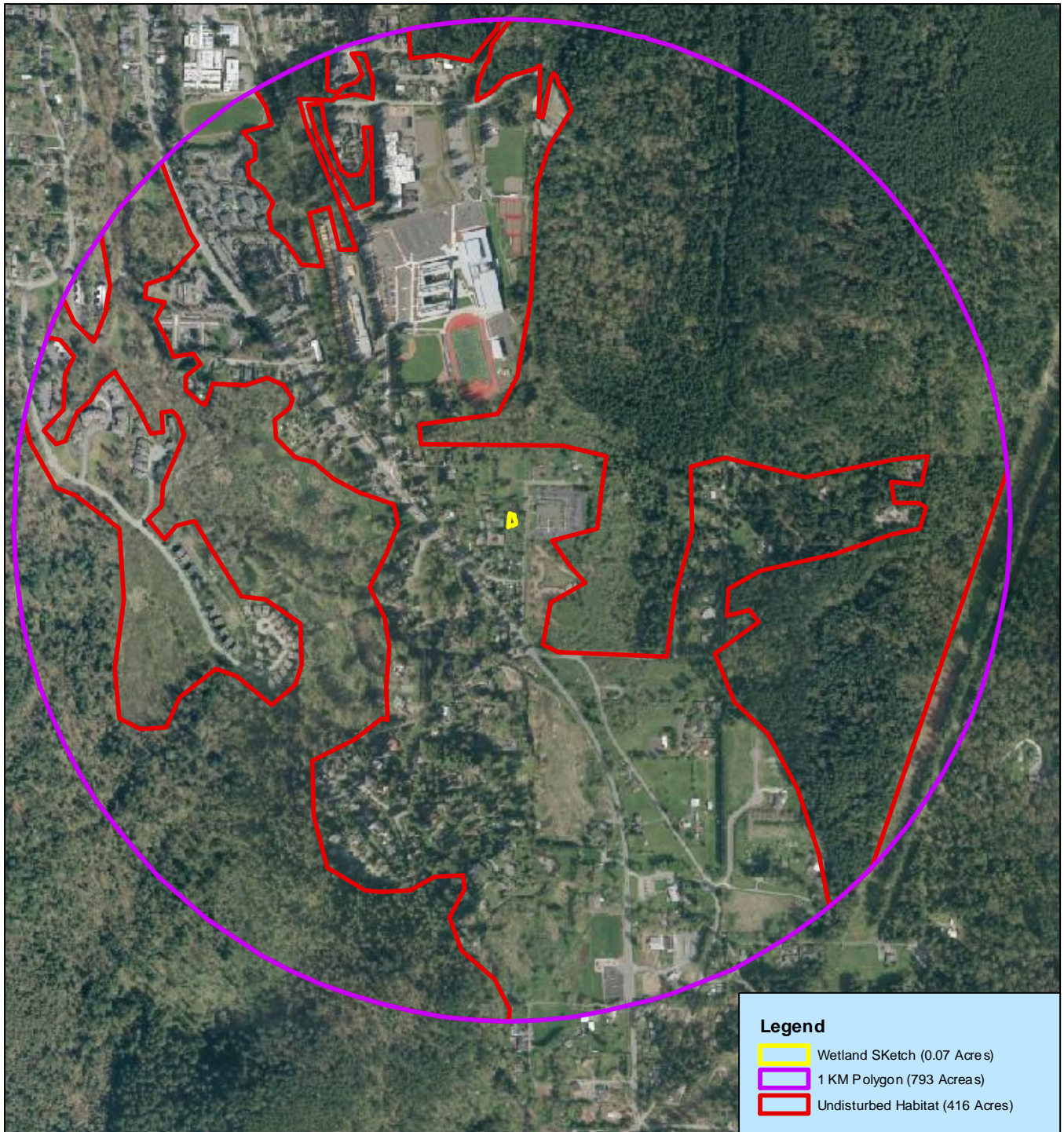


Figure E- Accessible and Undisturbed Habitat

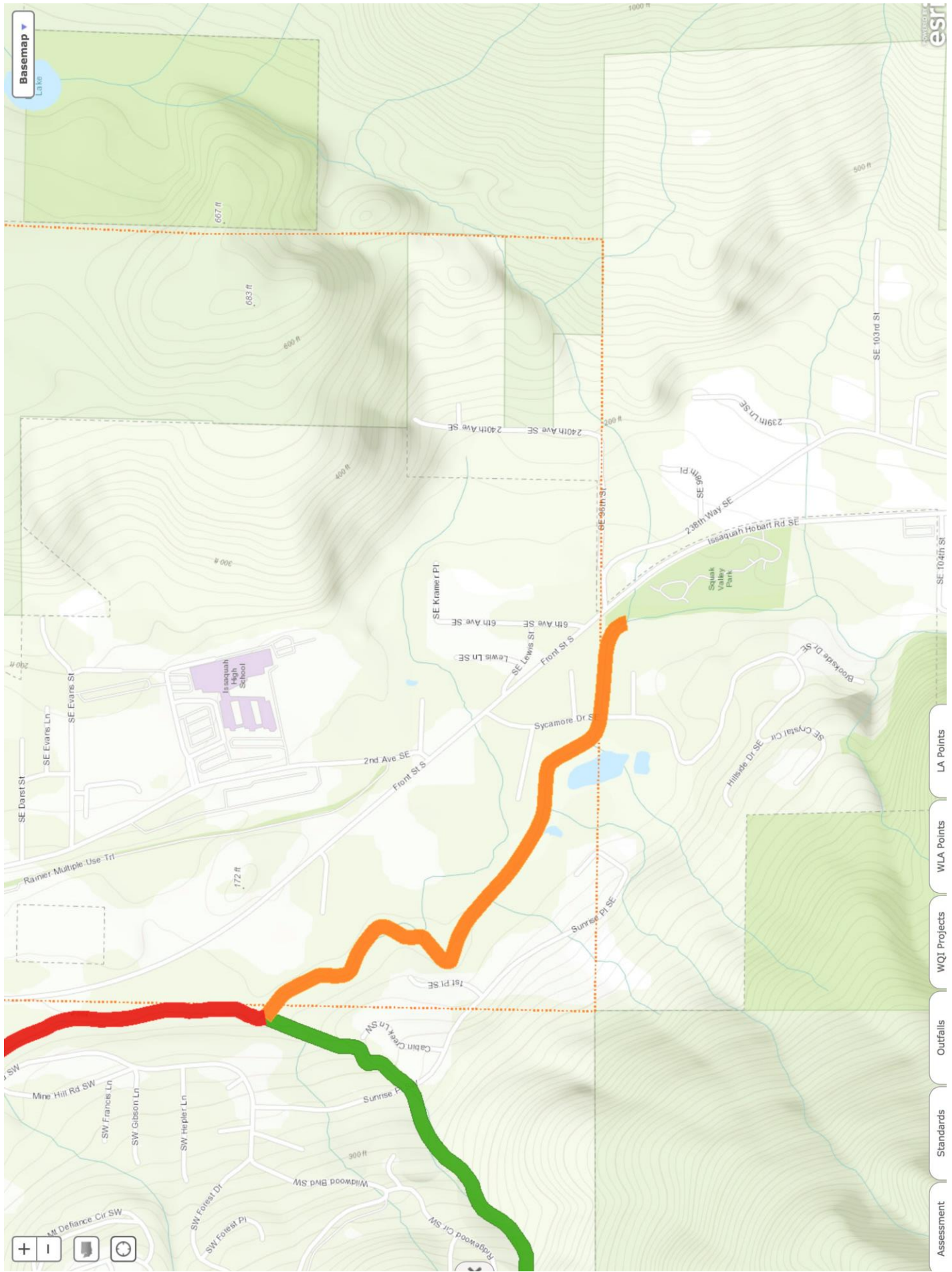


1 inch equals 1,000 feet









# Water Quality improvement projects

[Skip to main content](#)

This page gives an overview of water quality improvement projects — including total maximum daily loads (TMDLs) — in Washington. Projects are listed by county.

Each listing gives general information on waterbody, what pollutants are being dealt with, status of the project, and contact information in case you have questions.

Note: This is a partial list of the water quality improvement projects. A full directory will be developed.

## Get more information and data

Links provide more information by taking you to publications related to the project, or to the Water Quality Atlas, or to a project page as appropriate.

If more information is available about a project, it will be hyperlinked to the water body name. Use our [Water Quality Assessment Query Tool](#) to get data about water bodies.

## Read reports on improvement projects

To see water quality improvement reports, see the [Water Cleanup Plans](#) in our publications database.

## I want to...

View the current EPA-approved water quality assessment

Explore the status of water bodies in our Water Quality

Atlas mapping tool

[Review Whatcom County project](#)

[Skip to main content](#)

## Water quality improvement projects

Skip to main	Waterbody Name	Pollutant(s)	Status	content
County	Waterbody Name	Pollutant(s)	Status	TMDL Lead(s)
Adams Lincoln Whitman	<a href="#">Palouse</a>	Dissolved oxygen Fecal Coliform PCBs Temperature Toxics	Under development  EPA approved  Has an implementation plan	<a href="#">Elaine Snouwaert</a> 509-329-3503
Clark	<a href="#">East Fork Lewis River</a>	Fecal Coliform Temperature	Under development	<a href="#">Andrew Kolosseus</a> 360-407-7543
Grays Harbor	<a href="#">North Ocean Beaches</a>	Shellfish Closure Response  Fecal Coliform Bacteria source investigation study	Under development	<a href="#">Donovan Gray</a> 360-407-6407
King	<a href="#">Sammamish River and Tributaries</a>	Dissolved Oxygen Temperature	Under Development	<a href="#">Joan Nolan</a> 425-649-4425

County				TMDL Lead(s)
King	<a href="#">Soos Creek Subbasin Multiparameter</a>	Aquatic Habitat Dissolved Oxygen Temperature	Under Development	<a href="#">Joan Nolan</a> 425-649-4425
King	<a href="#">Soos Creek Subbasin Bacteria</a>	Fecal Coliform	Under Development	<a href="#">Joan Nolan</a> 425-649-4425
Mason	Cranberry, Johns, and Mill Creeks	Temperature	This project is currently being redirected as a temperature characterization study.	<a href="#">Betsy Dickes</a> 360-407-6296
Pend Oreille  Spokane  Stevens	<a href="#">Little Spokane River</a>	Dissolved Oxygen pH	Under development	<a href="#">Elaine Snouwaert</a> 509-329-3503
Pierce	<a href="#">Clover Creek</a>	Dissolved Oxygen Fecal Coliform Temperature	Water Quality Assessment project  Under development	<a href="#">Donovan Gray</a> 360-407-6407
Skagit	<a href="#">Padilla Bay</a>	Fecal coliform	Under development	<a href="#">Danielle DeVoe</a> 425-649-7036

Skip to main  
content

Waterbody Name	Pollutant(s)	Status
----------------	--------------	--------

County				TMDL Lead(s)
Snohomish	<a href="#">French and Pilchuck Creeks</a>	Dissolved Oxygen Temperature	Under development	<a href="#">Heather Khan</a> 425-649- 7003
Spokane	<a href="#">Hangman Creek</a>	Fecal Coliform Temperature Turbidity	Approved Implementation plan sent to EPA	<a href="#">Elaine Snouwaert</a> 509-329- 3503
Spokane	<a href="#">Spokane River</a>	Dissolved Oxygen PCB  Toxics		<a href="#">Karin Baldwin</a> 509-329- 3601  <a href="#">Adriane Borgias</a> 509-329- 3515
Thurston	<a href="#">Deschutes River and tributaries</a>	Dissolved Oxygen Fecal Coliform pH Sediment Temperature	Submitted to EPA for approval	<a href="#">Leanne Weiss</a> 360-407- 0243
Thurston	<a href="#">Deschutes Watershed: Budd Inlet</a>	Dissolved Oxygen Phosphorus	Under development	<a href="#">Leanne Weiss</a> 360-407- 0243



County				TMDL Lead(s)
Thurston	<a href="#">Henderson Inlet</a>	Dissolved Oxygen Fecal Coliform pH Temperature	EPA approved  Has an implementation plan	<a href="#">Donovan Gray</a> 360-407-6407
Whatcom	<a href="#">Lake Whatcom Watershed Multiparameter</a>	Dissolved Oxygen Fecal Coliform Phosphorus	EPA approved	<a href="#">Steve Hood</a> 360-715-5211
Yakima	<a href="#">Mid-Yakima Basin</a>	Bacteria	Under development	<a href="#">Greg Bohn</a> 509-454-4174
Yakima	<a href="#">Yakima River Basin</a>	Toxics	Under development	<a href="#">Jane Creech</a> 509-454-7860

Skip to main  
content

Waterbody Name	Pollutant(s)	Status

# Related links

- [Water Quality Atlas](#)
- [Water Quality Assessment Tracking System](#)

# Contact information

Skip to main content

Water Quality Program

[diane.dent@ecy.wa.gov](mailto:diane.dent@ecy.wa.gov)

360-407-6616